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ABSTRACT

This paper reviews work done since January 1972 in children's language acquisition and development. It is divided into the following sections: (1) a brief summary of descriptive studies of adult and child speech, (2) a review of the results of three types of manipulative studies, and (3) a discussion of J. Gruber's interpretation of early acquisition data. A discussion of apparent problems and trends in the current approaches to language acquisition study and an extensive bibliography conclude the paper.
(Author/PMP)

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A Review of Current Psycholinguistic Approaches to Language Acquisition

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Psycholinguistic research occurs in two major areas, that of children's acquisition and use of language and that of mature language use. This paper reviews only children's language as it has been studied since January of 1972. It is necessary for you to assume, temporarily, that it is legitimate for language performance research to use linguistic competence models. See Hankamer's footnote on page 36 in his article in last winter's Linguistic Inquiry as the authority for this temporary assumption.

This paper discusses five basic areas. It starts with the area of acquisition research with which I am most familiar-that of descriptive studies of adult and child speech. It then reviews the results of three types of manipulative studies. Next, it briefly presents one of the current interpretations of early acquisition data. The conclusion discusses apparent problems and trends that I see in the current approaches to language acquisition.

The descriptive studies are of two kinds. Those which describe the input to the language acquiring child and those which describe the child's verbal performance. Research on the linguistic environment of the young child reveals that there are characteristics identifiable in maternal speech which are associated to speech characteristics of young children (Broen 1972; Burke 1972; Killian 1972 a b; Phillips 1973; Snow 1972). Some associates so far identified are maternal rate of speech, maternal place and duration of pauses, sentence types used by mothers of young children, maternal mean length of utterance, maternal verb usage, and verb complexity.

There seem to be three generalizations derivable from the studies which describe the young child's speech.

1. Sets of phrase structure rules seem adequate to describe child speech between the ages of 2½ and 3 years (Gabria 1973).
2. Child acquisition sequences are consistent across languages and for bilinguals (Bowerman In Press; Martinez-Bernal 1972).
3. Children's utterance length can change with statistical significance within one months' time (Killian 1972 a b). For example, a 40% increase in the occurrance of two-words-or-longer utterances appeared in the speech of one child from the age of 22 to 23 months. Quite a difference if real.

It is apparent that much more associative data is needed before true manipulative studies can profitably occur, ones which seek causes and effects in the interaction process in children's language acquisition. I am presently involved in a study with 40 mother-child pairs trying to more definitively describe maternal speech correlates to child language change (Killian In Progress).

The second area of studies is the directly manipulative one. These studied seem to have three overlapping emphases. The areas studied are

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those of prosodic features, semantics, and the imitation-comprehension-performance question. The prosodic features that are studied are intonation, stress, and pause. The generalizations from the prosody studies are as follows: intonation does seem to be a cue for the meaning for kindergarten first, and second graders (Bohannon and Friedlander 1973). However, word order is a major linguistic cue for 4 and 5 year olds (Lahey 1972). Pause effects comprehension. Pause length and the position of the pause in the sentence effects the comprehension by 3½ and 5 year old children (Labelle 1973; Schuckers et al 1973). 4½ year olds can correctly reassemble incorrectly paused sentences (Schuckers et al). In recall by 4½ year olds of simple, active, affirmative, declarative (SAAD) sentences with the past tense, if the sentence is long enough to approach the short-term memory limit, approximately eight or nine words, the children seem to delete words which occur in the terminal half of the sentence. They do not leave things out in the beginning of the sentence, they drop them off the end, and not necessarily just the last word. The word previous to the last word may be deleted or the two or three words previous to the last word will be deleted. As for stress, lack of stress does not effect recall of contentives, functors, and suffixes for 3 and 4 year olds. The contentives, functors, and suffixes are recalled equally well by children of this age when there is no stress (Elliott 1972). Prosody and inflectional markers do not influence comprehension for 4 and 5 year olds except for center-embedded sentences. There, inflectional markers without the regular sentence prosody indications, interfere in the comprehension of center-embedded sentences (Lahey).

The second area of manipulative studies is that of semantics. Seven summary statements are possible in this area.

1. There are cross language semantic patterns (Bowerman).
2. Children start with large undefined concepts and add constraints. Three researchers are coming to this conclusion (Clark 1972; Winter 1973; Bowerman).
3. The usage of semantic restrictions changes with age (Bowerman; Howe and Hillman 1973; James and Miller 1973).
4. The recall of approximations to English are similar for 4, 5, 6, and 7 year olds and adults through the third approximation (Carrow and Mauldin 1973).
5. At the fourth approximation the 4 and 5 year olds do not do as well as the older subjects. This leads Carrow and Mauldin to conclude that there seem to be different semantic structures and memory processes operating for 4 and 5 year olds than those operating for the older children and adults.
6. Ling (1972) finds, or interprets rather, that third, fourth, and fifth graders, when they cite predominately functional reasons for selecting semantic alternatives for target words, choose words which are semantic reasons in themselves. For example, children choose words like "fly", "kills", "has feathers", when they choose words which are supposed to be like an original word.
7. The acquisition of syntax is facilitated by visual semantic referents, at least as found by Moeser and Bregman (1973)during their artificial language studies. They are using the Paivio model of imagery and are finding that subjects can learn syntax if they have visual cues to help them but do not learn it without the visual cues. Further, once their subjects learn the syntax they can increase the word categories

within their artificial language without further visual cues. That is, they can expand their vocabularies and word classes without visual help.

A major question, as I see it in the semantics research, is the validity of using a feature system (such as + animate, + human, + static) to explain the psychological processing of meaning. This is an obvious area in which performance models, or approximations to performance models, are needed.

The last area of manipulative studies is that of imitation-comprehension-performance. Do you remember when Fraser, Bellugi, and Brown (1963) were presumed to have done the definitive work in this area? They said that their data revealed that imitation was superior to comprehension which was superior to production on grammatical contrasts for young children. Fernald last year (1972) rescored the Fraser error data and asserted that the error scores on the production tasks were artificially inflated. With his correction he found that comprehension equalled performance in the Fraser data. He then replicated the original fraser study and using his new scoring method again found that comprehension equaled production. Things seem quite complicated. Current studies indicate that:

1. Comprehension equals production.
2. Comprehension is greater than production.
3. Comprehension is not related to production.
4. Imitation is equal to comprehension.
5. Imitation is not related to production.
6. Imitation is not equal to production.
7. Imitation is strongly related to production.
8. Production is greater than comprehension.

This does seem confusing but if the list is elaborated upon, some ideas as to why these differences are indicated do appear.

1. Comprehension of prepositions is better than the production of prepositions for 2½ to 4½ year olds according to Winter here at Iowa (1973).
2. Production precedes comprehension on subject-verb number agreement for 4 year olds (Keeney and Wolfe 1972).
3. Comprehension equals production on grammatical contrasts (Fernald).
4. Imitation is equal to comprehension if the word string or sentence to be imitated or comprehended exceeds the short-term memory span of 5 year olds (Miller 1973).
5. Imitation of reversible passives is a function of comprehension for 4½ year olds (Cocking 1972).
6. Imitation of reversible passives is unrelated to the production of them for 4½ year olds (Cocking).
7. Production of reversible passives occurred after exposure to these kinds of passives regardless of previous comprehension of them or not (Cocking).
8. This one is very unsettling. Martin and Molfese (1972) report that 3 year olds imitate better than 4 year olds on multiple prenominal adjective sentences. This seems to make questionable the blanket assumption that increasingly accurate imitation is a good indicator of a child's increasing language ability.
9. During this conference Willbrand and Tibbits reported on their work with young children's sentence repetition. They asserted that imitation was strongly related to production at least for the conjoined and adjoined sentences that were their stimulus materials.

10. In production by 3 and 4 year olds order preferences for prenominal adjectives are revealed. If they imitate such sentences, they show no order preferences. When they use several adjectives for themselves, relatively spontaneously, they show a definite adjective order preference. Thus indicating that imitation and production performances differ (Martin and Molfese).

The age of the subjects and the nature of the language task seem to strongly influence the results of these studies. There does seem to be much information here, but it must wait to be interrelated until some future date.

As for interpretations of the early acquisition data, several researchers offer provocative ideas. This paper summarizes these and then provides a relatively terse description of one linguist's interpretation.

Brown (1970) and Bloom (1973) both state that the child's two-word utterances express semantic relations. Bloom (In Press) adds that initially, the one-word utterances show stages of development and not holophrastic. As for example, they do not show sentence prosody. She is saying that there are developmental stages ev en in one-word utterances.

Slobin (1973) says that children develop their intention first and then seek forms of expressing the intention. "New forms first express old functions and new functions are first expressed by old forms". Slobin assumes that innate cognitive competence and processing variables result in linguistic universals.

Gruber (1973) reported his analysis of one child's speech whose age was given as between 1.24 and 1.42 years. (I do not know why age was reported in this manner.) Gruber classified two-word utterances by the child as either performative or reportative. He assumed that the performative, a direct expression of what one is doing, was the preferred choice of the youngster. For example, the child might say "Dory Spoon" and was really saying "I demand the spoon". Or the child says "See the bees" or "See bees" and is really saying "I indicate to you the bees". Gruber stated that the child's performative sentences were often accompanied by some significant behavior such as pointing, and thus was presumed to be a performance of what the child said. Gruber further assumed that children make the assumption that while they are speaking performatively, their parents are speaking performatively too, in a kind of naming game. Gruber labeled the word referring to the thing being talked about as the "theme" while the remaining word or words were labeled as the"complement" of the utterance.

In conclusion, I see some apparent problems in the research now. A major concern is the initial assumption of today. That competence grammars be used for recording observations of performance. This has serious possible defects. There's the question of validity; such as how valid is using a semantic feature system to explain a psychological process? There's the question of reliability; Dever from Indiana (1971) fears a biasing of the data if competence models are used. Johnson (1973) and Killian (In Progress) found decisions about utterance classification often arbitrary and difficult to compare with those of other researchers. There is the question of usefulness; such as how measure complexity reliably and validly for a particular purpose? How measure one transformation as compared with another ? Most importantly, there are no complete performance models to test out.

Related to the competence grammar reliability question is the current nonstandardization of descriptions and measures. This too has several facets. One is the problem of definitions. How define an utterance? Should utterances be measured as to mean length in words or morphemes and does it make a difference? Another aspect of the standardization problem is the differing results which occur upon attempted replication of any given study. Fernald's results differed from Fraser's for error definition reasons. Winter's results differed from the original Clark study. Martin and Molfese's results differ from those of many researchers. Are all these differences real or are they functions of the definitions and measures used?

There is a third problem involving what measures correlate with what other measures. Some measures assumed to be related sometimes only weakly correlate if they correlate at all. (See for instance, Nelson, Carskaddon, and Bonvillian 1973.)

There is a real need for some agreement among language researchers to standardize at least their initial descriptions of children's utterances. How else can results be meaningfully compared? There is a real need for data on how groups of children perform linguistically relative to other groups. There is a need for data, discussion and research on the question of whether or not an observed language regularity automatically implies "rule-governed". (See for example, Bowerman; Martin and Molfese.) We need observational data of all types for many linguistic purposes.

The apparent trends are hopeful. There is reconsideration of phrase structure grammars much as Dever in 1971 called for. Engler et al (1973) recommends that speech samples be analyzed using phrase structure grammars such as slot and filler and immediate constituent. There is a trend to use more subjects per study in order to allow more generalizations about language performance. It bothered me that descriptive or manipulative language studies reported only one, or at most, three subjects as such studies once commonly did. Perhaps these two trends indicate that more observational data will be collected. It can then, of course, be submitted to transformational generative grammars for explanation if desired. In conclusion it seems essential that researchers develop reliable descriptions of language performance by child or adult so that meaningful and efficient sharing of research results and interpretations can occur.

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Journal Abbreviations

CD=Child Development
JSHD=Journal of Speech and Hearing Disorders
JSHR=Journal of Speech and Hearing Research
JSpEd=Journal of Special Education
JVLVB=Journal of Verbal Learning and Verbal Behavior
LgSp=Language and Speech
LInq=Linguistic Inquiry

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